Welcome everyone.

This is an introduction to the Collaboration Tools used by Okeanos Explorer, the Nation's only federal ship dedicated to ocean exploration. The main objective of our program is to achieve a first-look characterization of a site to enable follow on research. Our program is mission driven. Our goal is to gather environmental intelligence to establish a "sense of place" in order to stimulate follow-on work.

In both the cruise planning process, and by conducting the cruises openly with telepresence, our cruises are conducted collaboratively with the broader ocean science and management community. Our expeditions are interdisciplinary and community-driven, rather than driven by the objectives of a single PI. Our science team and our science team leads act on behalf of the entire science community.

Another component to our community-driven approach is that the data and information products created during the expedition are shared with the public during and as soon as possible after the cruise. Our data and products are generally accessible to the public via the National Archives and data.gov within 30-90 days after a cruise.

Our philosophy is that exploration leads to discovery, which generates questions that catalyze research, leading to further understanding or more questions, potentially generating further research.

Okeanos Explorer has several core capabilities that are telepresence enabled which bring the experience of being at sea back to you on shore

We have 3 core mapping systems:

- Kongsberg EM302 Multibeam sonar, which we use to create standard bathymetry and seafloor backscatter data products. We have also used our EM302 to detect water column anomalies, which have later been confirmed to be cold seeps.
- Knudsen 3.5 kHz sub-bottom profiler
- EK60 single beam fisheries sonar

And last but not least, our state-of-the-art remotely operated vehicle, Deep Discoverer, or D2.
D2 collects HD video and has an onboard CTD and DO sensor. As I said, Deep Discoverer is our ROV. It is a dual-bodied, 6,000-meter capable vehicle with powerful lighting and high-definition imaging capabilities, temperature probe, a downward-looking still camera for photo mosaicking (still undergoing engineering trials). We also just installed a new manipulator arm which will be undergoing engineering trials during this cruise in preparation for sampling this summer; however, there will be no sampling capabilities during this cruise

I'm going to walk through some of the basics of how this works.

We have two at-sea scientists, Andrea and Mike; but most of the science team is shoreside. We use email, telecons, and instant messaging to stay in contact with the ship throughout the dive and the rest of the day. During the dive, we connect a telecon to the ship so you can narrate the dive and interact with the at-sea science team to guide the ROV, we also have two dive planning calls per day. We use the chatlog as a first-order data product as well as a discussion tool for our science party.

In terms of video, we have three feeds streamed to shore via Internet 1 and Internet 2. We will also provide high-definition Internet 1 feeds for science party use, but we are extremely bandwidth limited

with this. So if you aren't using it, please stop playing it, and please don't distribute past the science participants. Also, the high-resolution science feed is very large, so you will need a good Internet connection and a newer computer to view it. Just so you know what to expect - there will be occasional interruptions in the video, especially if the ship is in bad weather. If you lose the video for more than 30 seconds, please let us know.

What you can expect:

- We conduct 24-hour operations that include both ROV dives and mapping operations.
- We usually conduct ROV operations during daylight hours.
- We typically do eight-hour ROV dives, although during this expedition we will be testing 12-hour dive operations.
- We will likely deploy around 6/6:30 am and recover around 6/6:30 pm.
- If we need to switch back to eight-hour operations, we will deploy around 8 am and recover around 4 pm.
- Our actual bottom time will depend on depth.
- During non-ROV hours, we will conduct mapping operations as we transit to our next dive site.

As I mentioned, we will have two dive planning calls per day. At night, we will have call to debrief that day's dive and discuss the dives for the next two days. Dive plans and maps for these dives will be available on the ftp site. We will also stream our dive planning screen to shore on one of the video feeds. In the morning, the final discussion/briefing about the dive will usually occur 45-30 minutes before we reach the bottom. This is where you will get any information about any changes that occurred overnight and any special considerations such as equipment irregularities and weather updates. Approximately 30 minutes after we leave bottom, we begin the cycle again with a call to debrief and plan for the next two dives.

During the cruise, onboard technicians and personnel create a core suite of standard data products, with input from the science team. These are products used for day-to-day operations and planning, such as multibeam and backscatter data products, in situ sensor data, video from ROV dives, and operational products to provide situational awareness and keep you informed about upcoming operations. Note that this is what is done with the data collected by our systems and processed by our team during the cruise. Any further processing and science value added to a dataset beyond our core product suite, created on a scientist's own time and using their own software and equipment, can become the property of the individual scientist.

All the data and products that are part of our core product suite are QA/QC'd after the cruise, metadata records are created, and the data and products are sent to the archives for public access, usually within 30-90 days following the end of a cruise.

I'm going to walk you through our collaboration tools in this presentation and then through each of the programs afterwards.

Instant messaging is used both for science operations, as well as just for direct person-to-person communication. During operations, science participants can log into a centralized online chat room called the "Eventlog," shown in this slide. We use the eventlog as the online equivalent of a ROV dive log or scientists' daily journal, and it is a place where participants can note observations about ongoing

operations and discuss what they are seeing. All observations are time-coded, so the resulting record can be correlated to the operations and datasets from the ship.

The eventlog is most heavily used during ROV dives, where scientists from different locations log into this chat room to notate observations about what is being seen in the ROV video feeds. We also use the Eventlog as a central location to share information about the cruise and announce if operations have changed due to weather. This a two-way dialogue, though, and it's also a location where folks on shore can ask questions of team members in another location, including the ship. You may also see me pose questions from our viewers during lulls to begin a discussion.

CHANGES SINCE LAST YEAR:

We are no longer using the Tethys server, so when you log into your account (user account information sent to you by Lindsay or Brendan), you will not use @tethys.gso.uri.edu, you will use @noaasrs1.gso.uri.edu. This change is noted on our website and should also be in the email with your account information.

When you actually get into adium or pidgin and go to join the event log, there is one other setting that will have changed. The event log server is now rooms.noaasrs1.gso.uri.edu. This should auto populate, but if it doesn't and you are still having trouble connecting, please let us know. Also, after the first time you log on, you may need to close the program and restart it to see your buddy list populate.

I will show you an example of this at the end of the presentation.

As I said, we have changed our FTP server to NOAASRS1.gso.uri.edu and no longer use Tethys. During the cruise, the ship will regularly transfer raw data and a selection of products to an FTP Site where they can be downloaded and used by shore-side participants. These are products used for day-to-day operations and planning. Similarly, the shore-side team can upload data and products for the ship and other participants.

During the dive, we will connect a telecon to the ship so you can narrate the dive and interact with the at-sea science team to guide the ROV. PLEASE CALL IN AND TALK ON THIS LINE DURING THE DIVES!!

Exploration Command Centers, or ECCs, were originally the link between the Okeanos Explorer and the shore-based science team. There are a number of ECCs around the country, a few of which are listed here. One of the benefits of working at an ECC is the I2 connection. Internet 2 is a high-speed Internet connection that is available at many academic institutions. Internet 1 is the standard internet that you can connect to from your home or mobile device. In terms of how this affects you, I2 has a lower latency and is higher resolution than the standard I1 feed available on our website. As I mentioned earlier, we will be providing a high-resolution science video feed, but there will still be a slight delay compared to receiving the video via I2.

Another benefit to being at an ECC is that you can have a core team of scientists dedicated to the daily operation, removed from their daily lives, like you would be while at sea. People often tell us they are considerably more focused and invested in the ongoing operation while working at an ECC.

Here's some information that would be good for you to know.

This includes our expedition telecon line, which we'll be dialing into every day, three times a day. We'll be connecting it for the dive and we'll be connecting it for the debrief calls at the end of the day as well as for the beginning dive calls in the morning.

Our live video feeds can be found here, at this link.

All this information is also available on our collaboration tools website.

You can also access the full-resolution science video stream, which is here, and a link to our collaboration tools web page.

If you have any questions, please check out our collaboration tools, or you can email me at Kasey.Cantwell@noaa.gov.

I'm going to walk you through a couple of the collaboration tools and a couple of our website pages, so you guys are more familiar with it.

This is our collaboration tools web page.

We have information about everything that we use or the short connection here.

We have an outline of our mission capabilities.

We have the user request form, so those who have not already received a user account, please go here and fill out the form.

We also have a step-by-step walk through of how to download and connect to the instant messaging server.

On PC computers, the program we suggest using is called Pidgin.

And on Mac computers, it's called Adium.

So there's information here about how the event log works, what to record, when to record, and what sort of things to use.

We have a list of dive codes that we'll use; it's sort of a short hand of what we'll use in the event log.

These are sort of malleable as we go along throughout the cruise, so if there's something we're seeing a lot of and we don't have a dive code for it, we can add to it.

So in terms of set-up instructions, there's instructions for how to connect to the server, how to connect to the event log, which is a chat room, and then just general information about how to use Pidgin.

So, if I were to log on to Pidgin right now, I would log in and then I would see this list of buddies.

As I said before, you may need to open the program for the first time and then close it once you've logged in, and then reopen it so that you can actually receive all of your buddies.

So these are everyone who has requested a user account and so your buddy list should auto-populate.

In order to get into the chat room, the event log, you go to buddies, at least on Pidgin; on Adium, you have a very similar set up. You join a chat, and then you type in the word "eventlog."As I said, this server here should auto-populate. This is something that is new this year. It should auto-populate and should just allow you to join. If it doesn't, we have this information available on our website. Once you click "join," you should be seeing the event log.

Normally, there will be a lot more people engaged here, but right now, we are still prepping for this cruise, so we don't have a lot of activity.

If you want to do person-to-person chatting, you can just click on anyone either in your buddy list or in the event log. Double-click on their name. And that will connect them immediately. You can also click on their name here and it will also open a new window and you can connect.

In terms of our FTP, also on our collaboration tools website, we have a very extensive list of how to use our FTP server, our file structure, and our naming convention.

We also have a couple of examples of how to get into the FTP and walk around it.

We recommend using an FTP client called FileZilla, but you can use any FTP client.

Once you connect to the FTP, you will see OkeanosArchive and OkeanosCruises.

The current cruise will be under OkeanosCruises and you can see these are the other cruises so far this year.

And then once you're in here, you'll see a number of files. Currently, we don't have any yet because we haven't started generating files for this cruise. But, right now what you guys can use this for is and what you'll be able to use it similarly for once we are underway will be to look at dive plans and any other data sets. So, just like you would for any other data set, you can download it by clicking on the file, and you can just double click, and it will download it.

How you know where your files went when they are downloaded is here. So you point it to a local site. So in my case I have it in a file on my hard drive called FY15/Expeditions and then I have all these folders here. So you can just browse anywhere on your computer and find a certain folder that you like and then you can also drag and drop folders or files into your computer and it will download.

All of the dive plans that have been proposed for this cruise are also located here. So I'm going to open one. I downloaded it. It appears in my folder. And I should just be able to open it on my computer.

So for the diving planning forms, we use a standard template. People provide a brief idea of where we're going to be diving, they give us location, the site name. They give us the waypoints where we're going to begin and end the dive. And general depth.

Again, you can find all of this on the FTP site, in the “UPLOAD” folder, under “DIVE PLANS.” And this has all of the information that we’ve collected so far from scientists.

One of the other things that I’d like you guys to see is a dive summary form.

I’m going to pull up one from our old cruises. And again, this is the folder structure that you guys will see. Under “Products,” you see there’s also HighlightImages, HighlightVideo, ROV, and ROVDiveSummaries.

I can pull up one of these dive summaries, download it to my folder. And this is what a dive summary form will look like. You see here the expedition coordinator and the ROV Team Lead are noted, as well as our Science Team leads, the general location of where we were, what cruise we were in, what leg, and what dive number this was. A list of what ROV measurements there were. What sort of information we collected from the ROV, on bottom and off bottom and max depth. It has a list of everyone who participated, all of our science team members and their contact information, so at a later point in time, you can reach out to any of them. We walk through the purpose of the dive, the setting, the general exploration that was accomplished, and other species observed. Usually we highlight what species we saw and any interesting highlights that we have, as well as a general outline and lay of the land.

And that’s it! If you have any other questions, please let us know. You’re also welcome to check out our website, which should answer a lot of your collaboration tool questions. Have a good day.